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## Key-word Driven Automation Framework

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# Topics Covered

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- Overview of Key-word Driven Approach
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# Introduction to Test Automation

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- Reduction in project cycle time generally correlates to a reduction of effort/cost for testing. Hence test automation has become an increasingly critical and strategic necessity in IT industry
- The traditional record and play framework fails to provide automation benefits in the long run
- The only solution is to come up with a well defined framework design for test automation to reduce effort/cost

# Overview of Key-word driven approach

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## Key-word driven definition:

- Key-word driven test automation also commonly known as Table Driven test automation is typically an application-independent automation framework

## Salient Features:

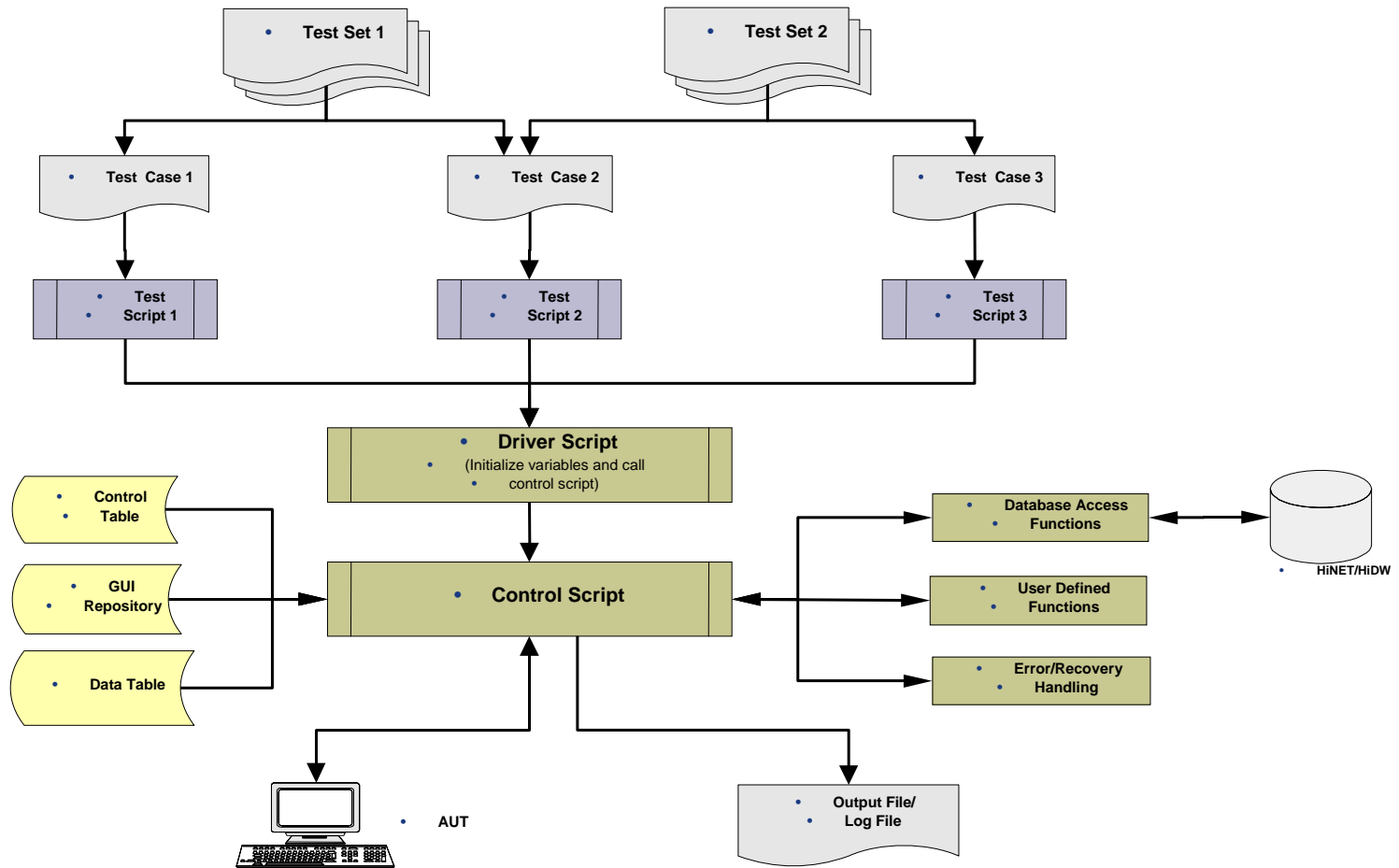
- In key-word driven testing, key-words are actions or tasks that are to be executed in a test
- Key-words, test data and any necessary GUI interface information are stored in separate spreadsheets, where they can be referenced by the main test module
- This keyword vocabulary would also be suitable for manual testing

## Overview of Key-word driven approach

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- The control table (or the main sheet of the excel file) records the key-words that describe the actions to perform
- Focus on automating actions as individual building-blocks that can be combined in any order to design a test
- Non-technical test engineers and business analysts can then define their tests as a series of these automated key-words, concentrating on the test rather than the scripting language

# Key-word Driven Approach Framework Diagram



# Components of Key-word Driven Approach

COMPONENTS	DESCRIPTION
Test Management Tool	<ul style="list-style-type: none"> <li>▪ This tool stores all the test cases both manual and automated and perform the batch execution of the test scripts</li> <li>▪ Results reporting</li> </ul>
Test Execution Tool	<ul style="list-style-type: none"> <li>▪ Acts as the execution agent for the automated test cases</li> </ul>
Test Sets/Labs	<ul style="list-style-type: none"> <li>▪ Manual test cases and Automated test scripts stored in QC</li> </ul>
Object Repository	<ul style="list-style-type: none"> <li>▪ Stores data required for the tool to identify every object on the application</li> <li>▪ Object names act as the logical references for the end user when creating the test cases</li> <li>▪ Multiple test scripts share the same object repository when acting on the same screen</li> </ul>
Driver Script	<ul style="list-style-type: none"> <li>▪ This constitutes the first level of script that initiates the test execution.</li> <li>▪ This forms the link between the Test Management tool and the actual test cases stored in the test case repository</li> </ul>
Control Script	<ul style="list-style-type: none"> <li>▪ Control script reads through Control table line by line and matches on "Key-words" contained in it</li> <li>▪ Based on the key-words, it retrieves the required data from the data table and performs specific tasks</li> </ul>
Library Files	<ul style="list-style-type: none"> <li>▪ These are shared library files which can be called in different test scripts. They usually contain common functionalities used across multiple scripts. Library files are uploaded and stored in QC</li> </ul>

# Traditional Approach vs. Key-word Driven Approach

Parameters	Traditional Approach	Key-word Driven Approach
<b>Modularity</b>	During change management, updating the Scripts & Test documents is cumbersome.	We can group common function together to form a separate component and can integrate the same at run time.
<b>Maintainability</b>	Maintaining the Automated Tests is difficult and Costly.	Maintenance is cost and effort saving as components of the framework are loosely coupled.
<b>Parameterization</b>	Most of the times Data is hard-coded in the scripts	Parameterization can be used optimally.
<b>Robustness</b>	Scripts created through traditional approach are notoriously unstable, non-reusable and often end up being abandoned.	Scripts are robust & stable.
<b>Cost</b>	Initial cost is less but maintenance cost is more.	Initial cost high but maintenance cost is less.
<b>Reusability</b>	Only some of the common functions can be reused.	Highly reusable

## Advantages of Key-word Driven Approach

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- Ability to create automation test scripts even as the application development is still in progress. This helps in quick automation development.
- Easy maintenance of input and output data
- Facilitates modular design approach
- Ease of test execution, as the tester needs to create the control sheet only once in a spread sheet format
- High degree of reusability
- Ease of maintenance of test scripts

## Limitations of key-word driven approach

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- Prior knowledge of tool specific scripting language is needed for creating keyword functions, Control scripts etc
- Constructing scripts for complex scenarios could be time consuming like scripts to access database and validate the same
- Stringent naming conventions has to be followed in order to avoid object repository related errors

## Conclusion

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- Key-word driven automation is arguably the easiest of the frameworks to implement and maintain, provided the initial setup is thorough
- Once the initial investment to develop the automation framework is made, it makes a highly scalable and reusable architecture
- In order to optimize and utilize the key-word approach for our testing, we may have to enhance a few component functions already provided by the automation tool
- Apart from the time spent on the initial setup, Key-word approach is an efficient automation technique and provides a great potential for long term success in test automation

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**Questions?**

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**Thank You**